What is Claimed Is:

[c1] A microelectromechanical system based fluid ejector, comprising:

an ejector nozzle;

a chamber that communicates with the ejector nozzle; and

a plurality of movable ejection structures associated with the ejector nozzle and arranged to move in the chamber such that a variable volume of fluid is ejected from the associated ejector nozzle.

[c2] The ejector of claim 1, further comprising a medical fluid within the chamber.

[c3] The ejector of claim 2, wherein the medical fluid is a drug.

[c4] The ejector of claim 2, wherein the medical fluid is a biological material.

[c5] The ejector of claim 1, further comprising a controller that actuates each of the plurality of movable ejection structures independently.

[c6] The ejector of claim 1, wherein each of the plurality of movable ejection structures comprises a piston.

[c7] The ejector of claim 1, wherein each of the plurality of movable ejection structures comprises a flexible diaphragm.

[c8] The ejector of claim 1, further comprising a plurality of actuators, each of the actuators being associated with one of the ejection structures.

[c9] The ejector of claim 8, wherein each of the plurality of actuators comprises an electrostatic actuator.

[c10] The ejector of claim 8, wherein each of the plurality of actuators comprises a magnetic actuator.

[c11] The ejector of claim 8, wherein each of the plurality of actuators comprises a thermal actuator.

[c12] A method for ejecting a fluid using a microelectromechanical system based fluid ejector having a chamber, an ejector nozzle and a plurality of movable ejection structures disposed in the chamber and associated with the ejector nozzle, the

method comprising:

moving a first movable ejection structure within the chamber;

moving a second movable ejection structure within the chamber; and

controlling the moving of the first and second movable ejection structures such that a variable volume of fluid is ejected from the associated ejector nozzle.

[c13] The method of claim 12, wherein controlling the moving of the first and second movable ejection structures is such that a continuous flow of fluid is ejected from the associated ejector nozzle.

[c14] The method of claim 13, wherein a flow rate of the continuous flow of fluid is constant.

[c15] The method of claim 12, wherein controlling the moving of the first and second movable ejection structures such that a variable volume of fluid is ejected from the associated ejector nozzle comprises ejecting a medical fluid.

[c16] The method of claim 15, wherein ejecting the medical fluid comprises ejecting at least one of a drug and a biological material.

[c17] The method of claim 12, wherein controlling the moving of the first and second movable ejection structures comprises controlling a plurality of actuators, each of the actuators being associated with one of the ejection structures.

[c18] The method claim 12, wherein controlling the moving of the first and second movable ejection structures comprises electrostatically controlling the moving of the first and second movable ejection structures.

[c19] The method claim 12, wherein controlling the moving of the first and second movable ejection structures comprises magnetically controlling the moving of the first and second movable ejection structures.

[c20] The method claim 12, wherein controlling the moving of the first and second movable ejection structures comprises thermally controlling the moving of the first and second movable ejection structures.